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AUTHOR Doll, William E., Jr.
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ABSTRACT

American social trends and the consequent developments in educational approach and philosophy from the time of the Civil War to the present day are examined. The transition from an agricultural to an industrialized society is discussed in relation to American definitions and concepticns of educational structures. The socioeconomic environment of a highly technological culture is identified as a "post-industrialized society," and the interaction between resultant socioeconomic patterns and educational philosophy and process is considered. This discussion and analysis of socioeconomic, cultural, and educational trends leans heavily on the work of Daniel Bell, an essayist concerned with the impact of a technological culture on educational development. (LH)

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SCHOOLING IN A POST-INDUSTRIAL SOCIETY

By: William E. Doll, Jr.
Assoc. Professor of Education
SUNY - Oswego, New York
(315) - 341/4254

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Between the Civil War and the turn of the century America was in a revolution - an industrial revolution. In 1860 America ranked fourth in world industrial output; by 1894 America was first and producing almost as much as the combined output of the second, third and fourth ranked industrial nations.[1] This revolution affected all of American life, altering the social, political and cultural aspects of the society. As John Dewey said, at the turn of the century:

> The change that overshadows and even controls all others is the industrial one ... (Its features) are writ so large that he who runs may read.[2]

Naturally this change affected education as well. In fact, during this period the conception of who an educated person was and how one became educated drastically changed. As Patricia Graham has said:

> Around the turn of the 19th century the definition of an 'educated man' changed, from one with a knowledge of the classics, however that knowledge was gained, to one who had been to college. This shift in the public conviction about what constituted an education was crucial .... The era of multiple educational possibilities had faded, and the narrower definition of education as what one learned in school had arrived.[3]

Thus with the social shift of America moving from an agricultural society to an industrial one there also came an educational shift, from an elitist concept of the classics for the few to an egalitarian concept of schooling for the masses. As is well known, school population figures virtually doubled, especially in the high schools, every decade from 1870 to 1920.

America is now entering another revolutionary age - that of post-industrialism. Will the direct relationship between a society and its institutions hold for the post-industrial era as it has held for the industrial and agrarian eras? Will the abrupt change from industrialism to post-industrialism cause as abrupt a change in our conception and methods of schooling as did the change from

agrarianism to industrialism? If history is an indicator of the future it would seem worthwhile to answer both questions with a tentative Yes, and to explore the coming post-industrial society for its possible effects on the education-schooling syndrome we now have. This paper will be devoted to such an exploration, with a strong emphasis on the sociological writings of the "father" of post-industrialism, Daniel Bell. The paper will be divided into three sections, one dealing with the nature of post-industrialism as put forth in Bell's The Coming of Post-Industrial Society (1973), and another dealing with the present "modernist culture" in Bell's The Cultural Contradictions of Capitalism (1976),[4] while the third section will focus on the educational and schooling implications of the first two.

A POST-INDUSTRIAL SOCIETY

It is now almost twenty years since Daniel Bell coined the word "post-industrial" and sixteen years since he wrote the first article on the subject. During that time Bell has written or edited three books and numerous articles on it. More important, other seers of the future have begun to adopt the term, perferring it over similar "post-capitalist" (Dahrendorf), "post-modern" (Btzioni), "post-bourgeois" (Lichtheim), or "post-civilized" (Boulding). Today the phrase is rapidly becoming a shibboleth. This has happened because too many have adopted the term without studying Bell enough, or the society Bell studied. For Bell any society can be viewed in terms of three often interlocking structures: a social structure, a political structure, and a cultural structure. The word "post-industrial" refers only to the social organization of a society, especially as this organization is determined or influenced by changing economic and techno-economic forces pose problems for the polity and the culture, but they do not

control or determine either.

> The concept of the post-industrial society deals primarily with changes in the social structure, the way in which the economy is being transformed and the occupational system reworked and with the new relations between theory and empiricism, particularly science and technology. These changes can be charted .... But I do not claim that these changes in social structure determine corresponding changes in the polity or the culture. Rather the changes in social structure pose questions for the rest of society ....[5]

In fact Bell goes on to argue that the political and cultural factors, especially the former, will do more to determine the type of society existent in America in the year 2000 than will the post-industrial thrust of the techno-economic social structure.

Looking at a society in terms of its social structure Bell posits that it is possible to categorize nations or world regions into three groups: the pre-industrial (Africa, Asia, South America), the industrial (Europe, Japan, the Soviet Union), and the post-industrial (the United States).[6] Each of these groupings has its own characteristics, particularly its own axial principles: a focal point for the structure of the group:

> The idea of axial principles and structures is an effort to specify not causation but centrality .... (I)t seeks to specify, within a conceptual schema, the organizing frame around which the other institutions are draped, or the energizing principle that is a primary logic for all others.[7]

Following, then, is a description of each of these categories with their axial principles and models of human learning.[8]

Pre-Industrial:

The pre-industrial or agricultural category applies to those nations that are essentially extractive in their economy; that is, agriculture, mining, fishing, lumber - work that can be done with muscle power or simple tools. The family is the key social unit, and land is the prime commodity. Common sense

and experience are the usual methodologies. The axial principle here is that of traditionalism: passing on skills, rituals, concepts from one generation to the next. The model of human learning is essentially one of apprenticeship, whether it be in terms of schools, colleges, universities with their lectures, recitations, glosses, or in terms of crafts and guilds with their mastercraftsmen or guildmeisters, or in terms of secret, selective, cultural societies with their rites of initiation. In all of these, great stress is placed on the ability to copy accurately as an apprentice should do.

Industrial:

The industrial or machine category applies to those nations that are essentially manufacturing, or goods-producing, in their economy; that is, men and machines are coordinated, integrated for the continuous increase of production of goods. Semi-skilled or engineering work are the prime occupations. The key social unit is the factory or the corporation and money is the prime commodity. Here money is more important than technology in making the machine run, for the technology of an industrial society is really quite simple. Bell points out that the key inventors who fashioned American industrialism - Bell, Bessemer, Edison, McCormack, the Wright brothers - were essentially talented tinkerers: they did not know, nor need to know, the theoretical foundations of the fields they were developing:

> (The major industries were) mainly the creation of inventors, inspired and talented tinkerers who were indifferent to science and the fundamental laws underlying their investigations. Kelly and Bessemer were unaware of the true microstructure of steel. Alexander Graham Bell was in Clerk Maxwell's opinion a 'mere elocutionist.' Edison's work on 'etheric sparks' was undertaken outside the theoretical research in electromagnetism and even in hostility to it.[9]

The methodology of this era, that which these inventors did so well, was empirical experimentation. Here experimentation is a level above trial and error. The inventors learned from their failures. They "saw" what did not

work. Still the process was very time consuming and very episodic, for they were not able to work from a recognition of the logical possibilities inherent in each situation. Thus patience and persistence became necessary prerequisites for inventors. The axial principle of the industrial era is the obvious one of growth of productivity. As Henri Saint-Simon, popularizer of the word "industrial," pointed out in 1816 when he was envisioning the new order, wealth would henceforth be created by production and machinery rather than seized through plunder and war. This principle of the growth of production has remained paramount until the present day, when the limits of growth and zero-growth are becoming fashionable concepts. The model of human learning used in this industrial structure is that of mass schooling. The organization of American schools and colleges into a system, David Tyack calls it the "one best system," occurred at the time (1880 - 1910) that American industry was accelerating the fastest. Further, as so many revisionist educational historians have pointed out, the model for mass schooling was borrowed virtually intact from industry, particularly from those aspects of industry influenced by Frederick Taylor's "laws" of scientific management.[11] In adopting this model the schools acquired a professional, bureaucratic and hierarchial structure, defined curriculum in terms of external structures, and measured development in terms of productivity. However, most important is the fact that society in general and schoolmen in particular adopted an industrial consciousness, conceiving of schools as factories and students as products. As Ellwood Cubberley remarked in the year 1916:

> Every manufacturing establishment that turns out a standard product maintains a force of efficiency experts to study methods of procedure and to measure and test the output of its works. Such men ultimately bring the manufacturing establishment large returns, by introducing improvements in process and procedure, and in training the workmen to produce larger and better outputs. Our schools are, in a sense, factories in which the raw products (children) are to be shaped and fashioned into products to meet the various demands

> of life. The specifications for manufacturing come from the demands of twentieth century civilization, and it is the business of the school to build its pupils according to the specifications laid down.[12]

This engineering-efficiency-expert metaphor has remained part of the American schooling process throughout the industrial era. It can be found today in such movements as accountability, programmed instruction, behavioral objectives, and competency based education. This metaphor will by no means be eliminated in the post-industrial era, for efficiency definitely will be one strand that is to continue in the education of the scientist and the theoretician; but the metaphor will lose much of its functional power as future society becomes more person oriented. To use Bell's phrase, the post-industrial society will be "a 'game' played between persons," rather than a game played against nature, or against fabricated nature.[13]

William Pinar elaborates this point when he states that since consciousness is always "of" something, consciousness in an industrial society has been of material objects - diswashers, automobiles, television sets, houses, clothing etc. But in a post-industrial society consciousness will become "increasingly, consciousness of experienced social and psychological relations:"

> When one comes to preoccupation with the distinctively human world, that is the psychological-social world of human being, one enters the constructed, the abstracted, the transitory. It is a world not of objects as much as one of experiences.[14]

This is one major change post-industrialism will bring.

Post Industrial:

The post-industrial society has been labelled an automated society, a knowledge society, a leisure society, a technological society, a change society, and a service society. As long as the focus is on only one aspect of post-industrialism all of the above fit and yet none of them do. For Bell, the essence of post-industrialism is captured in the phrase, "the centrality of theoretical knowledge," with emphasis on the centrality of the theoretic. Fur-

ther, post-industrialism is but one aspect of the future, providing problems that the polity and the culture will have to handle. How the social, the political, and the cultural interact will determine the nature of future society - if we have one. On this last point Bell is a good deal less than optimistic.

The only nation Bell sees beginning to move into a post-industrial structure is the United States. Here the primary mode of work will be in the areas of research, design, and service: in research, to help develop the "new"; in design, to help make the "new" practical; and in service, to help people live with the "new," and with themselves and others. This shift from defining work in terms of extraction or fabrication represents a radical redefinition; but such will be necessary as fewer and fewer people become engaged in the production of goods, just as fewer and fewer people today are engaged in farming, mining, fishing, lumbering - areas that dominated productive life only a few generations ago.[15] No longer will the family or the corporation be the prime social units. Rather, these will be what Bell calls "public households," communal or community groups having a public interest and using public methods of decision-making. The prime commodity will be knowledge, but not just knowledge, for the axial principle of post-industrialism is the "centrality of theoretical knowledge." The model of human learning, here expanded to include human development, will be an educational one, combining skills and professionalism with a development of self and community, via the use of analytic and theoretic tools.

To understand the depth of change Bell is envisioning here it is necessary to focus on his choice of words, "the centrality of the theoretical." Bell is saying that it is not the accumulation of information that is important but the structure of character of knowledge itself:

> In the post-industrial society, what is crucial is not just a shift from property or political criteria to knowledge as the base of new power, but a change in the character of knowledge itself. What has now be-

> come decisive for society is the new centrality of theoretical knowledge, the primacy of theory over empiricism, and the codification of knowledge into abstract systems of symbols that can be translated into many different and varied circumstances .... (I)t is theoretical knowledge that has become the matrix for innovation .... (W)e have the possibility, for the first time, of large scaled 'controlled experiments' in the social sciences. These, in turn, will allow us to plot alternative futures .... to construct a 'tableau entire" for the arrangement of decisions and choices.[16]

What Bell is saying here and in other passages is, first, that the character of knowledge itself has changed, from that which is discovered to that which is constructed through Kantian type categories. Second, by combining computers and cybernetics, it is possible to develop a methodology for "organized complexity," based on an overview of all the logical possibilities inherent in any given situation. This sort of logical combinatorial analysis is, methodology, a long way from the episodic empiricism (to use Bruner's phrase) which Thomas Edison or the Wright brothers employed in their research. Third, access to this theoretic will produce a new elite, one based on intelligence and knowledge not on wealth and inherited social status. Power will now shift to the intellectuals from the capitalists, with a professional ethic replacing a profit ethic, and with the university and public forums replacing the factory and the marketplace as citadels for decision-making and debate.

Before those in education, especially in higher education, see post-industrialism as the Promised Land, it is important to recognize two factors. First, post-industrialism refers only to one of three aspects forming a future society; and not the most important one at that. Second, the structures of the techno-economic, the political, and the cultural will be at variance with one another until a new transcendent ethic is found or developed to replace the world-view of a departed bourgeois culture.

A MODERNIST CULTURE

Looking along the continuum of the industrial axis one sees the theoretic as the dominant aspect of the post-industrial structure. However, taking that same structure and placing it in a modernist framework one sees a new axial principle emerge - that of technocratic efficiency. This principle is in contrast with the equality principle of polity and the self-fulfillment principle of culture. Together these three realms - the techno-economic, the polity, the culture - with their different axial principles form contemporary society.[17] This society is not a unified one, as post societies have been; it is a dirempted society because the three realms are obedient to different axial principles. The realms

> are not congruent with one another and have different rhythms of change; they follow different norms which legitimate different and even contrasting types of behavior. It is the discordances between these realms which are responsible for the various contradictions within (contemporary) society.[18]

Thus the post-industrial social structure stands as an advance over the industrial social structure, while, at the same time, being a source of controversy and disjunction in contemporary society. Two particular diremptions which Bell focuses on are those between the socio-economic and the polity and between the socio-economic and the culture.

Technocracy versus Polity:

The mind-view of industrialism was, and the mind-view of post-industrialism will be, essentially technocratic. This is a view which originated with Henri Saint-Simon, "the last gentleman and first technocrat," was carried forward in America through the writings of Frederick Taylor, and brought into the present day in the decision-making "revolution" of Robert McNamara. These three "hierophants in the pantheon of technocracy," expressed a mind-view which:

> In its emphasis on the logical, practical, problem solving, orderly and disciplined approach to objectives, in its reliance on a calculus, on precision and measurement and on a concept of a system, is a world-view quite opposed to the traditional and customary religious, esthetic, and intuitive modes. (This view) draws deeply from the Newtonian world view, (believing as it does) that the author of Nature must be something of an engineer since Nature is a machine ....[19]

This technocratic view lies at the heart of industrialism and of the schooling model industrialism produced. It will not diminish in the post-industrial era, with its emphasis on skill, specialization, and professionalism; especially as these apply to the training of a scientist. But this thrust will be countered by the force of polity, a force Bell believes will ultimately dominate in the coming decades. Bell believes this because everywhere he sees people clamoring for a more participatory, open, and public decision-making process. As he says:

> We have become, for the first time, a national society, in which crucial decisions, affecting all parts of the society simultaneously are made by the government rather than through the market; in addition we have become a communal society, in which many more groups now seek to establish their social rights - their claim on society - through the political order.[20]

The technocratic mind-view is not set up to deal with such a procedure. As John Dewey pointed out over fifty years ago, technocratic efficiency and democratic participation do not go hand-in-hand. The technocratic view of rationality draws on the logical and systematic, believing that decisions should be made apart from personalities. The political view draws on consensus and compromise, believing that decision-making is primarily a relationship between people. The technocratic view separates the ends from the means and concentrates all its power on the means; it is really a procedure for the efficient implementation of set ends. But, again as Dewey pointed out, in participatory democracy ends are not so set; they emerge out of the interaction of the par-

ticipants. Thus, a new methodology is needed, one that integrates ends with means.[21] Following this line of reasoning Bell argues that more and more decisions will involve value choices and on this basis the "technocratic mind-view necessarily falls before politics." To wit:

> What is left is not rationality as the objective scaling of social utilities but bargaining between persons.[22]

This is why Bell calls post-industrialism a "game" between persons. One of the new and important tasks the schools face is to help people become proficient in the area of interpersonal communications.

A Disjointed Culture:

Past cultures, argues Bell, have had some sort of "unifying inner principle," some thread which ran through all the realms and made the realms into a "structural whole." In Western society it has been "the bourgeois idea ... which has molded the modern era for the past 200 years."[23] In America the union of the Puritan temper and the Protestant ethic, with its emphasis on "work, sobriety, frugality, sexual restraint, and a forbidding attitude towards life,"[24] has given a common meaning to the social, the political, the cultural. But now this bourgeois era has come to an end, and without something to replace it there is left only a disjunction of realms and a rampant hedonism:

> When the Protestant ethic was sundered from bourgeois society, only hedonism remained, and the capitalist system lost its transcendental ethic.[25]

The advent of industrialism, in the late 18th and early 19th century, brought with it, in the form of laissez-faire capitalism, a "radical experimental individualism."[26] The "laws" of the market place were to solve all economic and social problems. While each individual was to strive for personal gain the conflict among individuals and between sellers and buyers would "naturally" produce the best for the individual and for the community. This "unrestrained economic impulse," a feature built into the very nature of capitalism, "was held in check by Puritan restraint and the Protestant ethic."[27] The

Puritans "because they had founded their community as a covenant in which all individuals were in compact with each other"[28] did not let individualism, in either the economic or social realm, go too far. Their polity was clearly a communal one. The Protestants, with their emphasis on frugality, industry and delayed gratification, encouraged a sense of self that was anti-hedonist. The combination of these forces formed what Bell calls the "bourgeois world-view," which itself served both to coalesce society and to restrain the radical individuality of capitalism. This structure outlived the Puritan and Protestant movements actually dominating American society until after World War II. After this war many forces conspired to bring about a disjunction: social and geographic mobility, the decline of religious absolutism, the transformation of the cities, the rise of national and multinational corporations. Bell singles out two factors as contributing most to the demise of the bourgeois world-view: the "victory"of the avant-garde in culture, and the economic rise of liberal capitalism. Quoting Irving Howe, Bell declares that the role of the avant-garde, the modern, the new is "to struggle with an unyielding rage, but never quite to triumph against the established order."[29] In this dynamic tension between the new and the established, change is produced, but it is change which has a dialectical continuity to it. Without such a continuity change becomes its own end, and in the "triumph" of the avant-garde this is what Bell believes has happened:

> Everything is to be explored, anything is to be permitted, including lust, murder, and other themes which have dominated the modernist sur-real.[30]

The other factor contributing most to the demise of the bourgeois culture has been the advent of liberal capitalism:

> The greatest single engine in the destruction of the Protestant ethic was the invention of the installment plan, or instant credit. Previously one had to save in order to buy. But with credit cards one could indulge in instant gratification. The system was transformed by mass production and mass consumption, by the creation of new wants and new means of gratifying those wants.[31]

For Bell this creation of a debt economy combined with a desire to experience the new has overthrown the traditional restraints of Protestant frugality and delayed gratification. Add to this the loss of a Puritan covenant with its insistence on a sense of community and what is left is nothing but hedonism. The public household is an attempt not to recapture the lost ethic of bourgeois Protestantism but to establish a new transcendent ethic which will bind together the realms of the social, the political, and the cultural.

The Public Household:

The shift from an industrial to post-industrial economy and social structure will directly cause a change in the nature of work, the character and use of knowledge, the structure of class and power, and the consciousness of personal relations. It will not directly cause a change in the decision-making process from an individual, market forum to a community, public forum but it will aid in such a change. As professionals the new intellectual elite will be accepting of the notion that decisions should be made through public debate, for one of the attributes distinguishing a professional is that he is trained in being called to account by his peers in an open manner. Not only is this framework different from the caveat emptor, accepted by the businesssman in the market place, but it fits in well with the polity trend Bell labels as "rising entitlements":

> Condorcet and Tocqueville had argued that what was distinctive about modern society was the demand for equality. That thrust continues today, 150 years after it first emerged....But in the last third of this century, the demand for equality has been broadened into a demand for a wider set of rights--political, civil, and social--as claims on the community. What is clear is that the revolution of rising expectations... is being transformed into a revolution of rising entitlements.32

No longer is a market place rationality suitable for settling these issues of "conflicting rights", for it is just that rationality, based on personal individualism, majority rule, and absolute values, that is being challenged. To provide a new structure to replace the bourgeois world-view and the market

rationality of laissez-faire capitalism, Bell turns to the past, to Aristotle, and posits the public household as the "polis writ large":

> The public household is, to go back to Aristotle, 'a concern more with the good condition of human beings than with the good condition of property.' It is the centrality of conscious decisions, publicly debated and philosophically justified. 33

Two factors stand out in this definition of a public household. First, it is a process for re-establishing a sense of community, a covenant between people to pay more attention to things personal than to things material. In a household there is a sharp distinction between needs and wants, in a hedonistic society this distinction is blurred causing individuals to believe they need what they want. There are certain natural limits built into needs based on biological and social factors; wants are open ended and actually grow with consumption:

> The nature of a household consists in sharing things in common and necessarily has to come to some common understanding of the common good .... at the table there is simple sharing. The controlling idea is that of needs. According to Aristotle, men have natural needs .... But these needs, biologically derived are limited and satiable .... The acquisition that is unlimited, that is directed largely to self monetary gain, Aristotle calls chrematistic; it is 'unnatural' precisely because it is unlimited. What is distinctive about the modern market economy, sociologically, is that it has been a bourgeois economy. This has meant two things: first, that the ends of production are not common but individual; and second, that the motives for the acquisition of goods are not needs but wants.[34]

What Bell is aiming for here is a "reaffirmation of liberalism" without having that liberalism turn into hedonism or rampant individualism. To accomplish this there must be a willingness on the part of individuals to balance their wants against the needs of others. This will not be easy to accomplish, for over the past two hundred years western society has given precedence to the individual, and the community has been considered, as Jeremy Bentham said, as nothing but an abstraction of the "sum of the interests of the several members

who compose it,"[35]

The second factor that stands out in Bell's definition of a public household is the notion of "conscious decisions publicly debated and philosophically justified." Here Dewey's emphasis on constituent groups participating in the decision-making process is merged with Kant's concern that normative rules be established not for what should be the substance of standards but for the process of deciding such standards publicly. What a community must have Bell believes is a mechanism for deciding its standards. The standards themselves will vary from community to community and from time to time, but unless hedonism is to run rampant, there must be public and rational debate of all issues leading to public decision-making with all constituent groups participating. In all this it is easy to see Bell, in the tradition of Dewey's Individualism Old and New, and of his "Great Community," ultimately placing faith in the rationality of humans to use their intellectual powers to solve social problems. But Bell realizes this will not happen automatically. It is a "question of whether there is a common will," a developed

> ... self-conscious maturity ... which seeks to redefine one's self and one's liberal society on the only basis on which it can survive: the reaffirmation of our past; recognition of the limits of resources and the priority of needs over wants; and agreement upon a conception of equality which gives all persons a sense of fairness.[37]

The development of such a will is a mammoth task, but then the alternative of a hedonistic society given over to the exploration of all sensations is one that "leads to debauchery, lust, degradation, murder," and ultimately chaos and tyranny. If this alternative is to be avoided, the vehicle for the development of a common will and a sense of public household lies in education, for it is through education that a self-conscious maturity might just possibly arise.

EDUCATIONAL IMPLICATIONS

Before looking at the educational implications of all the foregoing it would be useful to restate the paper's main thesis; namely, that if the change from industrialism to post-industrialism is as revolutionary as was the change from pre-industrialism to industrialism, and if the direct relationship between a society's social structure and its institutions holds for post-industrialism as it has held for the previous two eras then America may well expect major changes in its educational institutions between now and the year 2000. This framework is useful not only for hypothesizing about the future but also for examing the past and for making sense out of the present.

Today American education is being attacked as it has never before been attacked. Criticism of the schools and school procedures is nothing new to America, but what is new is an attack on the concept of schooling itself. As both Henry Perkinson and David Tyack have pointed out,[39] Americans have always had an affinity for the process of schooling, but since the Civil War they have practically made a national fetish out of it, naively assuming that schools could solve all social problems. Hence the thrust to impose busing, initiate driver education, drug and sex programs. By and large these programs have not produced the results desired; and the criticisms have mounted as the gap between the hoped for and the actual has increased. Americans have looked on their schools as panaceas, and schoolmen have encouraged such a view. But as the schools have not been able to produce jobs, equality, lower crime rates, etc., not to mention pedagogic activities such as skillful writing and accurate computation, the concept of schooling itself has come under sharp attack from virtually all quarters. Students, parents, teachers, educational leaders: all have been vocal in their attacks. One such group is the educational revisionist historians who have demonstrated that in the twentieth century the schools have been more institutions of social control and political persuasion

than they have been institutions of personal or intellectual development.[40] When Michael Katz asserts that American schools "are imperial institutions ... designed to reflect and confirm the social structure that erected them" and that a close look over the past hundred years shows them to be "universal, tax-supported, compulsory, bureaucratic, racist and class-biased,"[41] most Americans become both defensive and more aware. They become defensive about having that which has become almost a national religion attacked, and they become aware that the differences between the hopes and the realities indeed are real and great. But if one is to accept Bell's thesis that the industrial era has been dominated by businessmen who use cost-efficiency as their prime standard of judgment, and that their businesses were built on the work of "talented tinkerers" who had little or no use for intellectual, theoretic knowledge, then the school situation described by the revisionists is more understandable. It would be quite unnatural for such a business-oriented society to have intellectually or personally-oriented schools.

However by the same token, if the same society-institution relationship holds into the post-industrial era then there is reason to expect that tomorrow's schools will indeed be intellectual institutions organized around "the centrality of the theoretic," and that they will promote a consciousness of people rather than of things. One question that could be asked is whether schools as such will play much of a role in educating a post-industrial citizenry. Considering the emphasis on knowledge that post-industrialism will foster it seems more likely there will be a rebirth in schooling, not a demise. However, this re-schooling role will probably be quite different from past schooling roles. In the past, and indeed even into the present, schools have been essentially dispensers of information. That role clearly does not fit the modern university since World War II. These institutions have been and will continue to be creators of new knowledge. They will replace businesses as the central institutions of a post-industrial era. Colleges more and more

will become organizers of knowledge, concentrating on its structure rather than on its dispersal. They will also be specific skill centers where certification in particular areas will be given. In a professional, technical society, as an advanced industrial society is bound to be, such credentialling or certifying roles are bound to increase. Finally, colleges will be places where youth will be exploring and developing its own value system. But this will be done in a more heterogeneous mix, for the credentialling, professional function of colleges will bring to the college a more diverse group (in terms of age, ability, experience). A college education, or some equivalent, will be a minimal requirement for entry into the job market of a future society; and most of the jobs will be in service, not production, fields. More and more a master's degree or doctorate will be necessary for those wishing to participate as professionals. The percentage of the population holding school degrees is bound to increase. The high schools and elementary schools will continue to emphasize basics, but that which is basic to a post-industrial society will be more the organization and structure of knowledge than just the accumulation of it. Thus, skills will be placed within a structure.[42] As Bruner has stated schooling should be concerned not with knowledge but with the structure of knowledge, for it is schools, and really only schools, that can continually and consciously help individuals think about their own thinking.[35] Thus schools will pay much more attention to analytic skills than they have in the past. In Dewey's terms, answers will not be ends-in-themselves but will be starting points for assessment of the psychological and logical processes used to arrive at answers. Learning how to learn, or learning how to think, will become a major thrust of the schools.

Each realm of society, along with its axial principle, will present a different challenge to the schooling process. The post-industrial realm with its principle of theoretic knowledge will present challenges in two main areas: (1) the character of knowledge, (2) the definition of work. The shift from

knowledge as something discovered, and hence organized within itself, to something constructed by individuals out of the phenomena presented or experienced will bring an emphasis on personal and professional ways of organization. This in turn will mean greater insight into an individual's thinking patterns, the assumptions such an individual is making, and the connection between those assumptions and the conclusions drawn. The copying pattern used in so much of today's schooling will no longer be appropriate; a new methodology using alternatives, contrasts, anomalies will need to be developed. As work is defined in terms of service to others rather than in terms of the production of things there will be an emphasis on the quality of the work performed, the interpersonal aspects of work, and the internal, intrinsic rewards of work. This will be a change from the Puritan-Protestant conception of work which is that done out of duty, or self-interest of an external kind. In school terms this will mean a greater emphasis on cooperation, internal motivation, group interaction; and it will also mean that evaluation will have to be restructured to pay more attention to the qualitative, the personal, the intentional.

The political realm and its principle of equality will require the schools to develop a compromise and consensus methodology rather than one based on authoritarianism and power. Here a very real conflict could arise between the technological methodology of the expert and the personal methodology of the participant. The 'right solution' technically and logically may not be the best answer personally and psychologically. Here skills in the art of interpersonal communication and group dynamics will need to be emphasized. There will also be a need to change the structure of the classroom and the way assignments are <u>given</u>.

The cultural realm with its principle of self-fulfillment will require the schools to enter directly the field of morality and moral development. Bell argues, quite strongly, that if a new transcendent ethic is not found,

hedonism will run rampant. This ethic will need to be a public ethic in two senses: (1) it will need to be formed publicly via rational debate and consensus, (2) it will need to place the "other" over the self. In short, this ethic will need to be an ethic of "the other" as opposed to "the self." It will need to be a community ethic. This challenge will probably form the greatest one the schools will have to face. It is a problem the nation faces right now in regard to abortion, smoking, and ecology. There are no easy answers to these issues and past methodologies, industrial ones, are of little help here. The schools have understandably avoided this arena, and where beginnings have been made through moral education and values clarification the results are less than encouraging. The real issue here is the ability to develop an ethic that allows for self-fulfillment but not for self-gratification. Again this tenuous balance is that between the individual and the group, between the self and the other, between the private and the public, between wants and needs.

The overall change in schooling, the one that will affect all areas, will be the need to find a mind-view to replace the technocratic. This mind-view, as has been pointed out, is suited to an industrial framework quite well for its use of an "orderly and disciplined approach to objectives" depends on a separation of means from ends, with the ends preset and the methodology emphasizing the means. This "technology of instruction" approach has been heavily used by the schools in the past two decades. However, in a society in which objectives emerge through participation, in a society committed to integrating ends with means, and placing these ends in the arena of public debate this methodology will no longer serve as a mind-view for the society. The methodology of technology will not disappear, for it will have a role whenever ends are pre-set. But less and less will knowledge fit into this category, leading, as Rene Dubos has said, to the recognition that "the only

knowledge of permanent value is theoretical knowledge"; and the fact that:

> the persons most likely to become creative and act as leaders ... are the ones with enough theoretical knowledge, critical judgment, and the discipline of learning to adapt rapidly to new situations and problems.[44]

The greatest challenge facing the post-industrial society will be to develop a mind-view to deal with the centrality of theoretical knowledge, in both its professional and personal forms; and the greatest challenge facing schools in a post-industrial society will be to develop a methodology to express this new mind-view.[45]

Footnotes

1. David Tyack, The One Best System (Cambridge: Harvard University Press, 1974), p. 29.

2. John Dewey, "The School and Society," in Dewey on Education: Selections, edited by Martin Dworkin (New York: Teachers College Press, 1959), p. 35.

3. Patricia Albjery Graham, "America's Unsystematic Education System," in American Education (July, 1974).

4. Daniel Bell, The Coming of Post-Industrial Society (New York: Basic Books, 1973) and The Cultural Contradictions of Capitalism (New York: Basic Books, 1976).

5. Bell, The Coming Post-Industrial Society, p. 13. (Underlinings mine).

6. Ibid., p. 117.

7. Ibid., p. 10 (Underlinings in the original).

8. What follows is basically an elaboration and modification of what Bell presents on p. 117 of his The Coming Post-Industrial Society.

9. Ibid, p. 20.

10. Ibid., pp. 49 and 342.

11. For some representative works on this thesis see Raymond Callahan, Education and the Cult of Efficiency (Chicago: University of Chicago Press, 1962): Colin Greer, The Great School Legend (New York: Basic Books, 1972) : Clarence Karier, Shaping the American Educational State (New York : The Free Press, 1975) : Michael Katz, Class, Bureaucracy, and Schools (New York: Praeger Publishers, 1971) ; Joel Spring, Education and the Rise of the Corporate State (Boston : Beacon Press, 1972).

12. This quote is given by Herbert Kliebard in his "Bureaucracy and Curriculum Theory", in Curriculum Theorizing, William Pinar, editor (Berkeley: McCutchan Publishing, 1975) , p. 52.

13. Bell, The Coming Post-Industrial Society, p. 117

14. William Pinar,"The Concept of Class in Educational Theory", in Review Journal of Philosophy and Social Science (Vol. I, numbers 1 and 2), p. 313. Pinar is here commenting on Bell's book The Cultural Contradictions of Capitalism.

15.. At the turn of the century approximately 30% of the work force was engaged in service industries (most of these in domestic service) with 70% engaged in production. By 1980 these figures will have reversed themselves, with 70% in services and only 30% in production. By the new century the production worker might well go the way of the "vanishing American farmer". See Bell, The Coming Post-Industrial Society, ch. 2.

16. Ibid., pp. 343 and 347.

17. Bell, The Cultural Contradictions of Capitalism, p. 10.

18. Ibidem.

19. Bell, The Coming Post-Industrial Society, pp. 357 and 348.

20. Ibid., p. 364.

21. For a detailed analysis of Dewey's view on the integration of ends with means and its implications for pedagogy see my two articles, "A Methodology of Experience : An Alternative to Behavioral Objectives", in Educational Theory (Vol. 22, no. 3) Summer 1972: and "A Methodology of Experience : The Process of Inquiry", in Educational Theory (Vol. 23, no. 1) Winter 1973.

22. Bell, The Coming of Post-Industrial Society, p. 365.

23. Bell, The Cultural Contradictions of Capitalism, pp. 7 and 8.

24. Ibid., p. 55.

25. Ibid., p. 21.

26. Ibid., p. 18.

27. Ibid., p. 21.

28. Ibid., p. 59.

29. Ibid., p. 46. This quote is really my amalgam of two Howe quotes. The Howe quotes, as Bell gives them: (Modernity) consists in a revolt against the prevalent style, an unyielding rage against the official order; (and) modernism must always struggle but never quite triumph, and then, after a time, must struggle in order not to triumph.

30. Ibid., pp. 157 and 158. This concept of exploring everything without limits helps me understand the phenomenon of "snuff films", those films depicting a life being snuffed out. Generally this life is human and under torture.

31. Ibid., p. 21.

32. Ibid., pp. 232 and 233.

33. Ibid., p. 278.

34. Ibid., pp. 222 and 223.

35. Ibid., p. 257. The Bentham quote is from his An Introduction to the Principles of Morals and Legislation, ed. J.H. Burns and H.L.A. Hart (London : Univ. of London, Athlone Press, 1070), p. 12.

36. John Dewey, Individualism Old and New (New York: Capricorn Books, 1929, 1962). The chapter on "The Great Community" appears in his The Public and its Problems (New York: Henry Holt and Company, 1927).

37. Bell, The Cultural Contradictions of Capitalism, pp. 281 and 282.

38. Ibid., p. 277.

39. Henry Perkinson, The Imperfect Panacea (New York: Random House, 1968), introduction: Tyack, One Best System, passim.

40. See footnote 5 for readings in this area.

41. Katz, Class, Bureaucracy and Schools, p. xviii.

42. For more on the concept of structures see my paper "The Role of Contrast in the Development of Competence" in A. Molnar and J. Zahorik, editors, Curriculum Theory (Washington, D.C.: publication of Association for Supervision and Curriculum Development, 1977), pp. 50-63.

43. Jerome Bruner, "Culture and Cognitive Growth", printed in J.M. Anglin, editor, Beyond the Information Given (New York: W.W. Norton, 1973), pp. 368-391.

44. These two Dubes' quotes are taken from Daniel Bell, The Reforming of General Education (New York: Columbia University Press, 1966), pp. 108 and 303.

45. A new movement in curriculum theorizing has emerged that bears some watching for possible development along these lines. Those who form this movement are presently being called "the reconceptualists". Samples of their work can be found in: James Macdonald, Bernice Wolfson and Esther Zaret, Reschooling Society (Washington, D.C.: Association for Supervision and Curriculum Development, 1973); William Pinar, editor, Curriculum Theorizing, op. cit., 1975); and Alex Molnar and John Zahorik, editors, Curriculum Theory (op. cit., 1977).